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### Prior Appropriation Doctrine as a Cause of Premature Water Development

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PRIOR APPROPRIATION DOCTRINE AS A CAUSE  
OF PREMATURE WATER DEVELOPMENT

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New Sources of Water for Energy  
Development and Growth: Interbasin Transfers

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# I

The Rule of Capture's\* ill effects on development of oil and gas are well known. Not only are they well known, but they have in a sense passed into history; every significant producing state has adopted "conservation legislation" radically modifying the effect of the Rule. So it is not surprising that the doctrine of prior appropriation -- a form of capture principle -- has similar ill effects on water development. My object here is to describe those effects and explore some possible cures.

The Rule of Capture -- unmodified -- adversely affects the development of oil and gas because it gives each owner of a right to drill a skewed view of the costs and benefits of drilling. Most critically, for our purposes, it leads him to base his decisions in part on phantom benefits.

Under the Rule of Capture an owner deciding whether to drill a well counts all the oil or gas that he expects the well to produce as a benefit attributable to his drilling. But a portion of the

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\* The essence of the Rule of Capture in the oil and gas context is that a producer is not liable for producing oil and gas originally in place under the land of another so long as the producing well does not trespass. Once the oil or gas is extracted, the producer owns it in the more complete form of ownership generally associated with the ownership of a chattel, i.e., it is no longer subject to legitimate removal by another as was true when it was in the ground.

benefit is phantom: some of the oil\* that he extracts would have been produced by others' wells anyway. As a result, owners in the aggregate will drill some wells whose costs -- in terms of the value to society of the resources invested in the well (steel, labor, etc.) exceed the true benefits -- the value of the oil that would not have been produced by other wells anyway. If, for example, the present value of a well's costs is \$1 million, and the present value of its true product (the oil it produces that would not have been produced anyway) is \$900,000, then the well is, from a social standpoint, wasteful. Yet under the Rule of Capture it would probably be drilled, if it was expected to produce phantom benefits of \$100,000 or more. In an extreme case, such as the East Texas field in the early 1930's, the result is a forest of oil wells.

State conservation laws respond to this with well-spacing regulations. These aim, in a very rough way, at preventing the drilling of wells that are not justified in terms of their real contribution to aggregate mineral production from the field.

Again, a single owner under the Rule of Capture, deciding on a rate of flow from his wells, counts the full value of the well's product in any time

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\* Used to refer to oil or gas.

period as its gross benefit. But part of that value is phantom: it simply duplicates the value of the oil in the ground. The well owner perceives this component of value at the wellhead as a benefit -- as being attributable to his production costs -- only because production is essential to his obtaining a secure property right in the oil. The phantom benefit drives the owners collectively to produce at a faster rate than they would otherwise. It makes them ready to incur more costs from accelerating production -- such as channeling and other damage to the reservoir -- than they would have been willing to incur if their calculations were not skewed by the phantom benefits. The result, in the extreme, is suggested by the image of two boys with two straws and only one soda. The soda is likely to disappear very rapidly.

Conservation regulations seek to cure this by setting allowables for each well, theoretically representing a production ceiling roughly equivalent to the efficient rate. (But see Stephen L. MacDonald, Petroleum Conservation in the United States: An Economic Analysis 150-196 (1971), for a critical evaluation of the process by which spacing regulations and allowables are imposed.)

(Economists normally express these distorting effects of the Rule of Capture in terms of external

costs rather than phantom benefits. Thus the detrimental effect of production from one owner's well on production by other owners, and the detrimental effects of his rapid rate of production, are costs "external" to each owner's calculation of gains and losses from alternative courses of conduct. I have used the "phantom benefit" concept to convey the same idea, because it seems an easier way to picture the parallel distortions caused by the doctrine of prior appropriation.)

The feature of the law of prior appropriation that makes it a Rule of Capture is the principle that, with a few special exceptions (for instream uses such as recreation), acquisition of a property right in water requires that it be (1) diverted from the stream and (2) applied to a "beneficial use." As a result someone anticipating a surge of future demand, and higher prices for water rights, can exploit that insight only by investing in expensive diversion works. Suppose, for example, that an observer of the water and energy scene believes that by the year 2010 oil shale will again rise from the ashes and be a source of demand for water. He has before him a project with these characteristics: Its cost, discounted to present value, is \$5 million; the present value of the returns from use of the water, over the life of the project, is \$4,500,000



(all figures in constant 1982 dollars); and the present value of the returns from the project between scheduled completion in 1985 and the year 2010 is \$3,200,000. Finally, suppose the investor is confident that he will be able to sell the water rights in the year 2010 for about \$7.5 million (as always, in constant 1982 dollars), which have a present worth of about \$2 million.\* The expectation of that sale will make the project appear to be a profitable one. And this is true even though the purpose for which the water is sold in the year 2010 is one that will make no use whatever of the diversion works into which our investor proposes to sink resources. In tabular form:

(All figures in terms of present values)

1. Without the expected sale

Costs:	\$5,000,000
Returns:	\$4,500,000

2. With the expected sale in the year 2010

Costs:	\$5,000,000
Returns:	
From use of the water, 1985-2010	\$3,200,000
From sale of the water in 2010	<u>\$2,000,000</u>
Total returns:	\$5,200,000

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\* This (and the other figures) are based on an assumed real interest rate of 5%. The principle is of course not affected by the choice of interest rate.

The "benefit" that our investor anticipates in the form of returns from sale in the year 2010 is phantom. If it were not that the law says that he cannot obtain a property right in the water without making the diversion, there would be nothing that causally linked that \$2 million return to the investment.

Phantom though it be, the benefit is enough to make the project look attractive to the investor. He therefore will expend resources with a present value of \$5,000,000, even though the maximum real return on that investment is only \$4,500,000. And, if the expected sale in the year 2010 actually goes ahead, the diversion works will have generated only the benefits attributable to use of the water from 1985 to 2010, or \$3,200,000.

(We can reframe the analysis in terms of external costs. The investor's diversion of the water denies some other entity the opportunity to sell the water in the year 2010, an opportunity that on our facts has a present value of \$2 million. That cost is external to our investor's considerations. Of course the problem is that we cannot identify the entity that is denied that opportunity: until appropriation, the water is unowned.)

This analysis applies despite the fact that

many of the actors on the water development scene are public entities that do not pursue "profit." Even a public entity may rush forward with diversion and transportation facilities in order to provide supplies for the future, since, under current law, that is the only way that it can obtain a secure property right in those supplies. (Since the public entity will usually not be looking forward to sale of the resulting water right for some completely different use, its diversion and transportation facilities are more likely to be consistent with the long-range use of the water. Even so, the rule against anticipatory rights requires the public entity to disguise its speculation by expending resources on diversion and transportation sooner than is necessary.) For example:

(All figures are discounted to present value.)

1. Conduct with the requirement of diversion and application to a "beneficial use" (construction to be completed in year 1985):

Costs: \$5,000,000

Benefits

From use of the water  
1985-2000 \$2,200,000

From use of the water  
from the year 2000 on 3,000,000

Total Benefits: \$5,200,000

2. Conduct without the requirement of diversion and application to a "beneficial use" (construction in year 2000):

Costs: \$2,405,000\*

Benefits: \$3,000,000

The \$3,000,000 in benefits from use of the water after the year 2000, under the scenario where the works are built in 1985, can be called quasi-phantom benefits. They are not wholly phantom, because construction of the works at some time is essential to the entity's enjoying them. But they are not due to the entity's accelerating the construction to 1985. Were it not for the entity's inability to secure a property right in the water without making a diversion, it could have made those benefits available but deferred construction until the year 2000. Instead, it incurred an additional \$2,595,000 in the present value of construction costs, which produced

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\* This figure is the \$5,000,000 cost, discounted another 15 years because construction is deferred by 15 years.

a real benefit of only \$2,200,000.

The social waste takes the form of society's expending resources with a present value of \$5,000,000 to obtain what it could have obtained by an expenditure of resources with only a present value of \$2,405,000. The loss from this premature diversion is a real one: society foregoes the product that that capital could have furnished in the 15 years from 1985 to 2000 if it had not been misapplied to construction of facilities for water diversion and transportation.

The essence of the cure for this problem would be to allow people to acquire a right to water without putting it to any "beneficial use." Or, perhaps, to preserve more of the existing nomenclature, one might simply recognize "holding for future use" as a form of beneficial use. A new form of water right would thus come into existence, which I will call an "anticipatory water right."

Besides removing the incentive for the sort of wasteful expenditures described above, recognition of such a right would create improved incentives for current owners of appropriative rights to adopt water-saving technology and practices. The primary incentive for a right holder to invest money in water-saving is the prospect of either applying the saved water to some purpose of his own or selling

the resulting extra rights. But under present law, even assuming a jurisdiction that has removed the more arbitrary obstacles to sale of water rights (see text at pages 21-24 below), one who freed up water by water-saving techniques could not hold his legal right to the saved water unless he sold it to someone then ready to embark upon applying it to a beneficial use of the traditional sort. But there may be few potential buyers ready to embark on such immediate use. As a result, our prospective water-saver may not be able to immediately realize on the benefits from his water-saving. By increasing the number of potential current buyers, recognition of anticipatory rights will increase the likelihood of his being able to cash in immediately on the present value of those benefits.

## II

The proposal of anticipatory rights raises a series of practical problems and possible objections. Some problems relate to (a) the initial allocation of such anticipatory rights, others to (b) the effects of such a change after initial allocation.

(a) Initial allocation. If such rights were allocated without charge (as current-use rights are), obviously the amount sought would vastly exceed the available supply. Moreover, those to whom they

were allocated would enjoy a windfall. The solution suggested by Meyers & Posner, and I think clearly sound, is an auction of some sort (perhaps modelled on government auctions for oil and gas leases).

(See Meyers & Posner, Market Transfers of Water Rights: Toward an Improved Market in Water Resources 42-43 (National Water Commission Legal Study No. 4, 1971).) Presumably bidders would be willing to bid roughly their estimate of the present discounted value of the proceeds of sale of the water for the uses which they anticipated.

This solution would give some concrete meaning to the vague proposition, so much a part of current water law, that the unappropriated waters of the state belong to the people. It would enable the people to realize on that "ownership" -- now a matter of rhetoric -- in the form of the receipts which would flow into the state treasury from the auction.

Not only does an auction solve the twin goals of (a) avoiding windfalls and (b) equating supply with demand, but it averts the problems that arise when government allocates rights on a basis of attempted application of merit principles. The model of such attempted application of merit principles is the FCC, which allocates valuable radio and TV channels on the basis of its appraisal of the extent to which applicants will serve the "public interest." The

result is that applicants invest enormous resources in hiring high-priced lawyers to put on a largely meaningless show: meaningless because the criteria for the public interest are necessarily so elusive. In addition, there is (I read) occasional hanky-panky: political affiliations of the applicants have been known to play a role, and money has even been known to pass under the table. Identifying the "public interest" in connection with anticipatory water rights would be no easier. No one's crystal ball is perfect. Rather than have some public officials try to identify the anticipated project of the greatest public value, an auction would decentralize and objectify that process. Bidders would base their maximum bids on their appraisal of the returns from their expected future sales. A bidder who wins through excessive optimism will bear the loss. Moreover, his decision on actual water use will be made in the light of facts as they develop. If the originally anticipated uses do not pan out, owners of anticipatory rights will switch to alternatives or sell to others who will do so. The rights should, of course, not be defined in terms of a specific use.

The above assumes that if the ultimate allocation of the water maximizes the return to the holder of the anticipatory rights, it will necessarily be



in the public interest. As Dr. Kneese's talk has shown, this overlooks the fact that uses will vary sharply in the extent to which they generate external costs or benefits -- i.e., costs or benefits external to the calculation of the owner. But that problem is completely independent of the ownership of anticipatory rights. If it is appropriate for government to constrain actual water uses in the light of those externalities -- whether by prohibiting or taxing disfavored uses, or by subsidizing favored ones -- government may do so whether or not people are able to hold anticipatory rights.

(b) Effects of ownership of anticipatory rights.

I think the primary objection here will be a fear of "speculation" and "hoarding." "Exxon will grab up all the rights." "Money means nothing to Exxon." The fear deserves a very close look.

The first answer is that some of the behavior that people label "speculation" is very useful to society. For example, if the water rights involved in my first hypo are held by a "speculator," who refuses to sell them for any price less than the present value of the expected future sales price, his doing so prevents the investor depicted there from investing \$5 million of real resources in a project whose true return, in terms of the value of its benefits to society, would only have been \$3.2

million.

Just as speculation in commodities mitigates the effect of unusual scarcity -- for example, by holding back some of the supplies of this year's coffee crop for use next year, when it is learned that next year's crop will be a bust -- so "speculation" in anticipatory water rights prevents a social loss.

The benefits of "speculation" in water rights are curious, however. Unlike the coffee speculator, the holder of anticipatory rights does not preserve for the future a supply that would otherwise not be there. The fact of someone's holding water rights in anticipation of use in 2010 does not increase the amount of water that will be physically available in the year 2010. The function of the holder of unused rights is negative: he prevents the waste of resources that would occur if diversion and current use were the only ways in which someone could cash in on the expectation of valuable future uses.

In other words, the rule against anticipatory water rights is in fact not an effective rule against speculation. "Instead it creates an incentive for the speculator to disguise his speculative intentions by constructing economically unjustified irrigation works or otherwise conducting an uneconomical

operation involving the actual use of water." Meyers & Posner at 41. In turn, the benefit from allowing "speculation" in the form of ownership of anticipatory water rights is precisely to avoid the social waste involved in those "economically unjustified irrigation works" [new diversions made in order to obtain a new water right for speculative purposes] or "uneconomical operation[s] involving the actual use of water" [persistence in wasteful water uses in order to retain a large water right for speculative purposes].

Second, there is nothing about anticipatory water rights that would prevent other uses in the interim. Suppose X is holding anticipatory water rights based on his expectation of an application to oil shale in the year 2010. Y comes along with a project that could use the water from 1982 through 2009, and the benefits from use in that period exceed the costs of the project. Clearly this creates an opportunity for a mutually favorable transaction between X and Y. And, assuming that there are many Xs and Ys (that is, many people holding anticipatory water rights and many people interested in renting them for the immediate or short-term), there would be a lively and competitive market for such rentals.

Renters of such rights would have a "cost" of a sort that is absent under present arrangements,

but it is a real cost, and in a competitive market would presumably be no more than what was economically sound: the value of the most valuable alternative use that was precluded by the actual renter's use of the water for his rental period. No renter should get the water unless his project is sufficiently valuable to enable him to pay such a rental.

(Even in the case where there was only one holder of anticipatory rights, he would still want to maximize his returns by making rentals. It is conceivable that such a monopoly position would cause less than all the anticipatory rights to be leased, even though they would have been in a competitive market. The suitable answer would seem to be a prohibition on any one entity's holding an excessive fraction of the total anticipatory rights outstanding.)

Third, the image of "hoarding" raises some additional problems. One is the risk of monopoly and the other is that the risk that holders of anticipatory rights would obstruct the allocation of water to valuable current uses.

The possibility of monopoly is certainly real. As I suggested above, any monopolistic control of anticipatory rights might obstruct socially advantageous leases of water rights; it might also interfere with sales of anticipatory rights to persons proposing to make longterm, or indefinite-term, uses

of the water. (If demand for water were very inelastic, a monopolist might profit by selling off less than the quantity of anticipatory rights than would be sold off in a competitive market.)

But there are possible solutions to the threat of monopolization. The statute enabling creation of anticipatory rights would provide that no single entity could hold more than some specific per cent, say 3% or 5% or 10%, of the anticipatory rights. The prohibition would have to operate so as to avoid evasion by the use of affiliates. Further, because water transportation costs are high, markets are to some degree local; therefore it might be wise to place some additional ceiling on the fraction of anticipatory rights held by any one entity in each watershed.

The other possible obstruction of timely sales by the owner of anticipatory rights is the risk of high transaction costs.

To see their potential role, we may look at the way a properly functioning market prevents a speculator from holding onto his speculation for longer than is in the public interest. What prevents an owner of undeveloped land from refusing to allow its development after the time for development is ripe? In a well-functioning market, when people with ideas for alternative uses can readily make

bids for undeveloped land, the owner who persists in holding it undeveloped incurs opportunity costs. He must forego the money offered by bidders, and as a consequence the income that he could earn by investing that money. A speculator in coffee (or any other commodity) incurs similar opportunity costs: if he fails to sell a bag of coffee today, he must forego the income that he could enjoy from the proceeds he would receive if he did sell. The holder of a bag of coffee is constantly trading off the present value of the return from a future sale against the present value of a current one. If the price bid by current consumers rose above the present value of the proceeds of future sale, some holders would sell off. (This would bring the price relationships back into equilibrium, so that the present value of a future sale just equalled the current price.)

In a properly functioning water market, the same would be true of anticipatory water rights. Suppose, for example, that X has acquired water rights in anticipation of sale for oil shale purposes in the year 2010, at a price that he calculates will yield returns with a present value of \$2 million. Along comes Y, with a current project, costing \$5 million and with returns over the project life having a present value of \$8 million. (Let us

assume for simplicity's sake that the project life encompasses a period long enough to be completely inconsistent with its use for X's expected oil shale activities.) Y would be willing and presumably able to bid X's rights away from him. At any price below \$3 million, Y still stands to gain, and at any price above \$2 million X stands to gain. Indeed, anytime that someone comes up with a project inconsistent with X's plans, but in which the water would have a higher net value than X anticipates from his original plan, the two should strike a deal.

But high transaction costs might buffer an owner of anticipatory water rights from feeling the full brunt of these opportunity costs. For the opportunity costs to bite, the owner must be more or less continually exposed to opportunities to sell, at prices at (or close to) the true market value of his rights. If high transaction costs cause bids to be rare, and to come in at less than the true market value of his rights, then there will not be enough bids, or the bids will not be high enough, to impose adequate opportunity costs on the owner. And in the realm of water transfers, transaction costs are notoriously high.

Nonetheless, if we look at each of the factors tending to raise transaction costs for water transfers, the picture is not so bleak. Those

factors seem to me to fall into three classes:

(1) ones that simply would not apply to sales of anticipatory rights; (2) ones that might apply, but which any legislature recognizing anticipatory rights would necessarily want to correct; and (3) ones which would remain in the absence of some innovation. I will deal with them in that order.

(1) Transaction costs inherently inapplicable to sales of anticipatory rights. A major source of high transaction costs for conventional water rights transfers is the need to protect junior appropriators dependent upon return flow from the water in the area of its original use. The relevant transaction costs include the costs of gathering evidence as to historical use and hydrologic evidence as to the portion of the withdrawal right that returned to the stream. They also include the legal proceedings necessary to work out adequate protection for the juniors who would be adversely affected by the transfer. (The reduction in the right resulting from concessions needed to protect those juniors is not here treated as a transaction cost, for it is necessary to compensate resource owners for real losses that the transfer would otherwise impose.)

But no such evidence-gathering or legal proceedings would be necessary in connection with the transfer of anticipatory rights, for there would be



no juniors with any legal right to "return flow." To the extent that there were junior appropriative rights in use, they would necessarily be subordinate to the right of the owner of anticipatory rights to withdraw the entire amount of his paper right. (If the anticipatory owner were only entitled to withdraw the portion of his right which was consumptive, that would of course be 0%, and his right would be utterly worthless.)

(2) Transaction costs qualifiedly inapplicable to sales of anticipatory rights: ones which a legislature recognizing anticipatory rights would want to abolish. Conventional water rights transfers are impeded by various statutes, administrative rules, and administrative attitudes. In some states, for example, statutes virtually prohibit such transfers. See Neb. Rev. Stat. Sec. 46-122 (1974 Reissue); Nev. Rev. Stat. 533.040 and 533.325 (1960); Okla. Stat. Title 82, § 105.22 (1981 Supp.); S.D. Cod. Laws §§ 46-5-33 to 46-5-35 (1978 Rev.); cf. Wyo. Stat. § 41-3-104 (1974 ed.) (authorizing transfer conditioned on a bureaucratic permit at least potentially entailing very complex findings), and Comment, Changing Manner and Place of Use of Water Rights in Wyoming, 10 Land & Water L. Rev. 455 (1975). The prohibitory laws appear to have originated in a desire to prevent owners of paper water rights, far in excess of the

needs of the parcel to which they were originally applied, from enjoying a windfall through sale of the excess. Quite apart from the cogent reasons to repeal such statutes generally, see Meyers & Posner at 25-27, the reason for their adoption is inapplicable in the case of anticipatory rights acquired by bidding at an auction. (An administrative approval scheme of the sort exemplified by Wyoming presents a mixed case. A legislature would want to trade off (a) the advantages of the permit process in terms of being able to guide private choices as to water use in the light of external costs and benefits, against (b) the benefits of facilitating conversion of anticipatory rights to use rights by keeping transaction costs low.)

In some states there is at least legal doubt as to the power of water districts to sell off water rights. See, e.g., a California Attorney General's Opinion saying that a water conservation district held its water in trust to receive and distribute water to landowners within the district, so that it could not sell surface recreational water rights to a land developer (51 Cal. Ops. Atty. Gen. 153, No. 68-102, 1968); and see Cal. Water Code § 22261 ("Nothing in this article [referring to Water Code §§ 22250-64] authorizes the sale of any water right [by an irrigation district]); and see generally Meyers & Posner at Appendix 1. It would be inherent

in any legislative decision to recognize anticipatory rights to permit any holder of such rights to transfer them, for such power to transfer would be essential if anticipatory rights were to be effective in removing incentives to speculative investment in diversion works.

At least in California, a state agency monitoring use of appropriation rights, the State Water Resources Control Board, has taken the view that any holder's effort to transfer a water right in one year demonstrates that he is not applying the water to a "beneficial use" and is therefore not entitled to it thereafter. See S. Angelides and E. Bardach, Water Banking: How to Stop Wasting Agricultural Water 10-11 (Institute for Contemporary Studies 1978). Again, it is inherent in recognizing the usefulness of anticipatory rights that the rights would not lapse as soon as the owner attempted to transfer them.

Basically, these restrictions on transfers, or clouds upon the legality of transfer, tend to arise out of attitudes that are inconsistent with recognition of anticipatory rights. While those attitudes might constitute a formidable obstacle to recognition of such rights, any legislature that was persuaded of the advantage of recognizing anticipatory rights would almost surely be ready to

eradicate these restrictions or clouds.

(3) Transaction costs that are as applicable to conversion of anticipatory rights as to change in use of conventional rights. A serious obstacle to changes in the use of conventional water rights is that, although the transferring parties must protect juniors who would be adversely affected by the change, they are often given no rights in their return flow at the new location. Thus they confer an uncompensated benefit on water users downstream of the point to which transfer is made. Their inability to capture the value of that benefit, coupled with their duty to protect adversely affected juniors, amounts to a tax on transfers. (Where the transfer is to an entirely new stream, the transferee may be able to retain a property right in the return flow from the new use. See City & County of Denver v. Fulton Irrigation Ditch Co., 506 P.2d 144 (Colo. 1972); and see Williams, Optimizing Water Use: The Return Flow Issue, 44 Colo. L. Rev. 301, 311-321 (1973). This is a helpful but incomplete exception to the general rule.)

As applied to the conversion of anticipatory rights to use rights, the impact of this rule is to artificially load the dice as between types of uses to which the water may be devoted. Suppose, for example, there are two potential users of water,

one having a use that is 100% consumptive (zero return flow to the stream) and another a use that is 10% consumptive (90% of the water originally applied returns to the stream). The 10% consumptive use obviously imposes a far smaller burden on the total water system, yet its developers will presumably have to pay the same (per unit of water to be originally withdrawn) as the bidder with a 100% consumptive use, with no possibility of recapturing the value of the 90% of the water which he returns to the stream. The most attractive remedy would be to give him the right to resell or reuse such return flow. See discussion at Meyers & Posner 29-31.

Even if we assume that this transaction cost is not removed by suitable legislation or judicial decision, however, it does not seem a powerful basis for objecting to recognition of anticipatory rights. Its major effect is to create distortions in the economic feasibility of particular uses of water -- precisely the same as the distortions that apply as between different uses competing for unowned water under the current system. (In comparing costs with benefits, the person proposing to divert water and apply it to a 10% consumptive use is forced to disregard the benefits generated by the 90% which returns to the stream.)

In summary: high transaction costs in the

transfer of anticipatory rights, or their conversion into use rights, would carry a risk of unduly delaying water development. Such transaction costs would tend to shelter owners of anticipatory rights from the opportunity costs of hanging on to their rights too long. But when we examine the sources of high transaction costs for conventional water transfers, we find that some are simply inapplicable to the transfer or conversion of an anticipatory right, some are ones that any legislature ready to recognize anticipatory rights would surely want to remove, and some create no more problem for the conversion of anticipatory rights than they do for the conversion of unowned, unappropriated water under present law.

### III

Up to this point, I have considered the recognition of anticipatory rights largely in terms of avoiding the economic waste that occurs when speculators in water rights must disguise their speculation by making an actual diversion. But there is another dimension to the recognition of anticipatory rights: it may present an opportunity to defuse some of the intense political conflict over interbasin transfers. Market systems have a tendency to defuse political conflict, largely because anyone who gets a

resource must pay the prior owner a price that satisfies that owner. (For a general consideration of the point, see Dwight R. Lee, The Political Economy of Social Conflict, or Malice in Plunderland (International Institute for Economic Research, Orig. Paper 36, 1982).) Thus the shipment of several hundred billions worth of oil out of Texas has not much alarmed the Texans, while the transfer of a few million dollars worth of Oregon water to Southern California could fairly be expected to generate violent political conflict. It seems likely that a key distinction lies in the fact that the Texas oil was owned by people and corporations who sold the oil only at prices that they considered acceptable. (Even in the era of price controls and windfall profit taxes, the point is largely true.) Might not ownership of anticipatory rights have a similar effect on interregional conflict over water? I think that there is some potential for that effect, but want to explore with you some of the problems.

Until now we have assumed that the anticipatory water rights would arise primarily by auction by the state. (The other source previously considered is the conversion of existing use rights into anticipatory rights when the holders of the use right adopted water-saving practices.) We have also assumed an anti-monopoly rule of some sort. The result would

presumably be widely scattered holding of the rights. Local and regional agencies might be among the owners, but presumably none would own a significant share because of the anti-monopoly rule. The auction proceeds would have flowed into the state treasury.

Would this do much to reconcile a lightly developed area to the export of its water? To be more precise, would the flow of funds to the owners of anticipatory water rights in a particular basin defuse the political resistance of citizens in that basin? To the extent that owners of the local water were local individuals or local agencies, it would have that tendency. But we have no reason to think that these would predominate. To return to my Texan example, notice that local people tended to receive a significant share of the proceeds of oil sales, since the owner of the overlying land was very likely to be entitled to royalty on the extraction. But we have no assurance that, for example, the lion's share of Colorado Western Slope anticipatory rights might not be held by shrewd investors in New York, Chicago and Los Angeles.

A partial remedy would be to allocate the auction proceeds to the area of origin. And I can think of no objection to doing so. I question, however, whether it would fully defuse the political conflict.



While the auction proceeds would presumably approximate the present value of the water, the discount to present value might make those proceeds look small compared to the region's image of the future value. Moreover, the proceeds would not capture significant pecuniary "spillover" benefits -- increases in land value and employment and entrepreneurial opportunities that would accrue to a region retaining the water locally and building an economy on its use. My impression is that the mystique of water is such that residents of any such export region are likely to have a very optimistic view of those spillover benefits.

An additional way to help defuse the political conflict would be to relax the anti-monopoly rules in favor of ownership by regional entities of a political or semi-political nature. These would certainly include, for example, irrigation districts, and might include general purpose municipal governmental entities such as counties or cities. With the proceeds of ultimate sale of the anticipatory rights certain to flow to the area of origin itself, the political pressure for statutes protecting the area of origin, see, e.g., Cal. Water Code §§ 10505 & 11460 (West 1956), should abate to some degree. Cf. National Water Commission, Water Policies for the Future 327-333 and Recommendation 8-3.b. (1973);

Angelides and Bardach at 32.

It might be possible to enable some such entities to acquire the rights initially without out-of-pocket costs, by allocating to the purchasing entity the auction proceeds for the particular rights sold. Thus the entity would bid for the rights with the very money that it would receive as a distribution from the auction.

But such a change introduces problems of its own. To the extent that local political or semi-political entities hold the rights, the assurance that rights-holders will respond to economic incentives will be reduced. For example, a political or semi-political owner seems more likely than a private owner to form an unrealistically high idea of the value of the rights that it holds. Further, although the press is diligent in smoking out certain forms of "waste" by public officials, opportunity costs -- the foregoing of returns from a potential sale -- have a subtlety about them that seems to cause the press to neglect them completely. As a consequence of these factors, public entities would be more likely than private ones to reject bids by developers with projects that are in fact far more economically valuable than the uses to which the entity might ultimately allocate the rights.

One way to offset this effect might be to try to give the political constituency of the entity (of whatever kind) some immediate interest in the proceeds of any sale that the entity might make of anticipatory rights that it acquired. For example, if the owning entity were required to distribute the proceeds of any sale to its constituents -- perhaps in the form of property tax rebates -- then the constituents would put pressure on the politicians to give a serious consideration to realistic bids for uses outside the region.

Whatever the solution, the goal of depoliticizing conflict over water transfers is likely to require some compromise of the pure efficiency purposes of recognizing anticipatory rights.

### Conclusion

Present appropriation law generates wasteful expenditure of resources because it forces people (individuals, private corporations, and public corporations) who anticipate rising demand and rising market value for water rights to invest in wasteful facilities in order to secure rights to future use of water; it forces the speculator to disguise his speculation, and the disguise takes the form of diversion works that are premature and/or unnecessary. Recognition of anticipatory

rights in water would remove the incentive for such wasteful expenditures.

Recognition of anticipatory rights should not foreclose any economically sound water development project. Anti-monopoly rules should preserve a competitive market both for lease and for sale of the rights in fee simple. Because the most severe sources of high transaction costs for ordinary changes of a water right are either inapplicable to conversions from anticipatory status, or would be easily removed by a legislature authorizing recognition of such rights, holders of the rights would be kept under substantial pecuniary incentives not to hold onto the rights too long but to allow their application to active use at a suitable time.

Finally, recognition of anticipatory rights holds out some prospect of helping to defuse the political tension emerging from consideration of inter-regional water transfers. By helping to provide a mechanism for compensation of citizens in the basin of origin, anticipatory rights can change the bargaining over such transfers; instead of political wrestling, with the losing region defeated by the winning region (typically the more populous), the bargaining can become a process of mutually advantageous exchange. But achievement of this latter goal may partly frustrate the goal

of attaining full economic rationality in the allocation and development of water resources.